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INTERNATIONAL

MOTOR VEHICLES

AUTO BUGGIES AND AUTO WAGONS

INTERNATIONAL HARVESTER COMPANY OF AMERICA  
(INCORPORATED)  
CHICAGO, U. S. A.

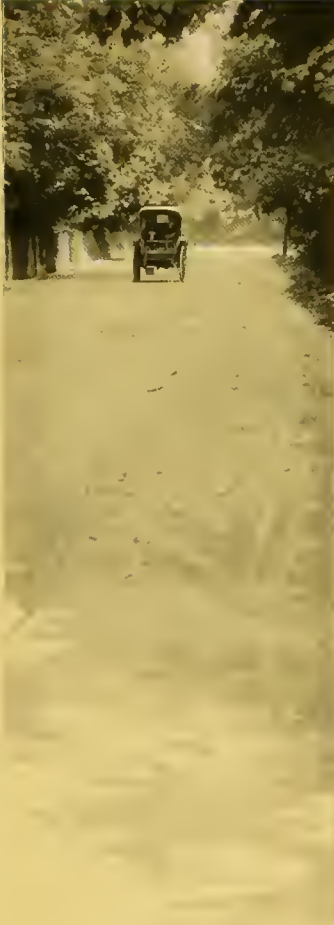




# INTERNATIONAL AUTO BUGGIES AND AUTO WAGONS



INTERNATIONAL HARVESTER COMPANY OF AMERICA  
(INCORPORATED)  
CHICAGO V S A



## Value is Determined by Service



THE price one pays for an automobile does not necessarily determine the real value of the car to the purchaser. It may, or it may not. The whole question depends on the use to which the car will be put and its mechanical features. A good motor car is the result of a knowledge of mechanics and materials, combined with an understanding of the conditions the builder must meet. For example, the builder who makes a car for country road use must have one with high road clearance, and one that is amply strong to resist the extra jars and hard work which a car of this kind must of necessity undergo.

A few strong features and one weak one do not make a satisfactory car. This is particularly true of the car which is made for country road purposes.

With these things in view, we call your attention to the construction of the International auto buggy and auto wagon. These cars are made for country towns and rural roads. They are particularly adapted for the individual who wants a machine that can be used for all road conditions, and for pleasure as well as business. For this reason they have high wheels and solid rubber tires.

These vehicles will travel country roads without dragging any of their underparts on the ground when a ridge is encountered in the middle of the road, or when one or both wheels drop into a depression, and for this reason this style of car will give better service on average country roads than the low wheel pneumatic tire type machine which may cost several times as much.

The construction of the International auto buggy and auto wagon is not cheapened in any detail so that they can be sold at a special fixed price. Their designers are intent upon building the best car of its kind, and every effort is expended to build the car right in every particular. Any person who desires a motor car for country roads will find upon examining the International auto buggy and auto wagon that their mechanism is the best possible for this purpose.



## Serviceability First Requisite



THE best standpoint from which to judge a car is its performance. A car may be made of the finest materials and be of high-grade mechanical construction, and yet not do its work properly. It is from the practical standpoint that the International auto buggy is best judged. We frequently receive letters from users who have driven this car up hills that no other automobile of any kind has ever been able to negotiate; through mud that has stalled horses and wagons; have pulled cars of 35 and 40 horse-power and their passengers up grades that stalled these cars; driven through snowdrifts, up steep inclines covered with ice; and in places where a horse and buggy could not possibly go.

The designers of the International auto buggy considered serviceability as the first requisite. A century of carriage building has taught makers that lightness and strength were absolutely necessary in vehicles for country, town, and rural roads. The combination of both these features has resulted in the International auto buggy, a car that has all the advantages of a buggy and none of its disadvantages, and for this reason it is the only logical successor to the horse and buggy.

The high wheels give abundant road clearance and the solid rubber tires eliminate tire troubles. So great is the difference in cost that an entire set of solid rubber tires can be purchased for the price of one good pneumatic tire. These features eliminate the excessive cost that is common to the automobile with pneumatic tires. It means greater service and a more dependable car, for the simple reason that the driver is not obliged to stop and repair a puncture when he is several miles in the country. One great feature of the International auto buggy that will appeal to every user of country roads is the fact that this car does no more harm to any roadbed than the ordinary spring wagon, which cannot be said of high-speed pneumatic-tire machines. For this reason the International auto buggy will commend itself to all those who desire good roads, and particularly to those who are taxed heavily for their maintenance.





THE International auto buggy is regularly equipped with two seats, two gas headlights and generator, three oil lamps, horn, and tools. On special order at small additional prices, the following will be furnished:

Dust cover for top.  
Top, storm front and side curtains.  
Storage batteries.

Magneto.  
Combined Speedometer and Odometer.  
Mud chains.

## Specifications of International Auto Buggy

TYPE OF BODY:—Surrey body, two seats.

PASSENGER CAPACITY:—Four persons.

CYLINDERS:—Two horizontal, opposed, 4-cycle, 5-inch bore, 5-inch stroke.

HORSE-POWER:—14 brake test, equivalent to 18 to 20 horse-power in automobile rating.

LOCATION OF ENGINE:—Suspended on steel sub-frame under the body.

BEARINGS:—Both crank shaft and cam shaft have large phosphor bronze bearings.

IGNITION:—Jump spark furnished by six dry cells. Storage batteries and magneto furnished on special order at additional cost.

LUBRICATION:—Automatic oiler.

DRIVE:—Chain to countershaft, chain from countershaft to each rear wheel.

SPEEDS:—Two forward and one reverse; direct on high speed—all operated by one lever.

WHEEL BASE: 90 inches.

WHEELS:—Front wheels have  $1\frac{3}{4}$  by 41-inch side wire tires; rear wheels have  $1\frac{3}{4}$  by 45-inch side wire tires; wheels are provided with roller bearings.

FRAME:—Wood, reinforced, a sub-frame of angle iron and cross bars.

SPRINGS:—Full elliptic, 36 inches long by  $1\frac{3}{8}$  inches wide.

STEERING:—By means of wheel.

BRAKES:—Differential foot contracting emergency expanding, rear wheels, hand.

GASOLINE CAPACITY:—7 gallons, enough for 75 to 100 miles.

EQUIPMENT:—Lamps, horn, tools.

International auto wagon specifications are same as auto buggy with the following exceptions.

TYPE OF BODY:—Panel box.

FREIGHT CAPACITY:—800 pounds.

The auto wagon is furnished regularly with one seat, two gas headlights and generator, three oil lamps, horn, and tools. Flare boards will be furnished on order. On special order at small additional prices, the following will be furnished:

Rear seat.  
Top for front seat.  
Full top.  
Storage batteries.

Magneto.  
Combined Speedometer and Odometer.  
Mud chains.

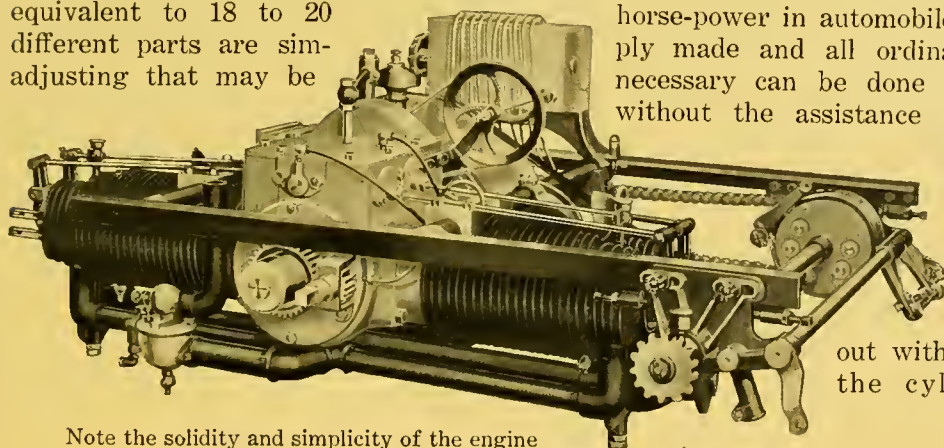




## Engine Construction



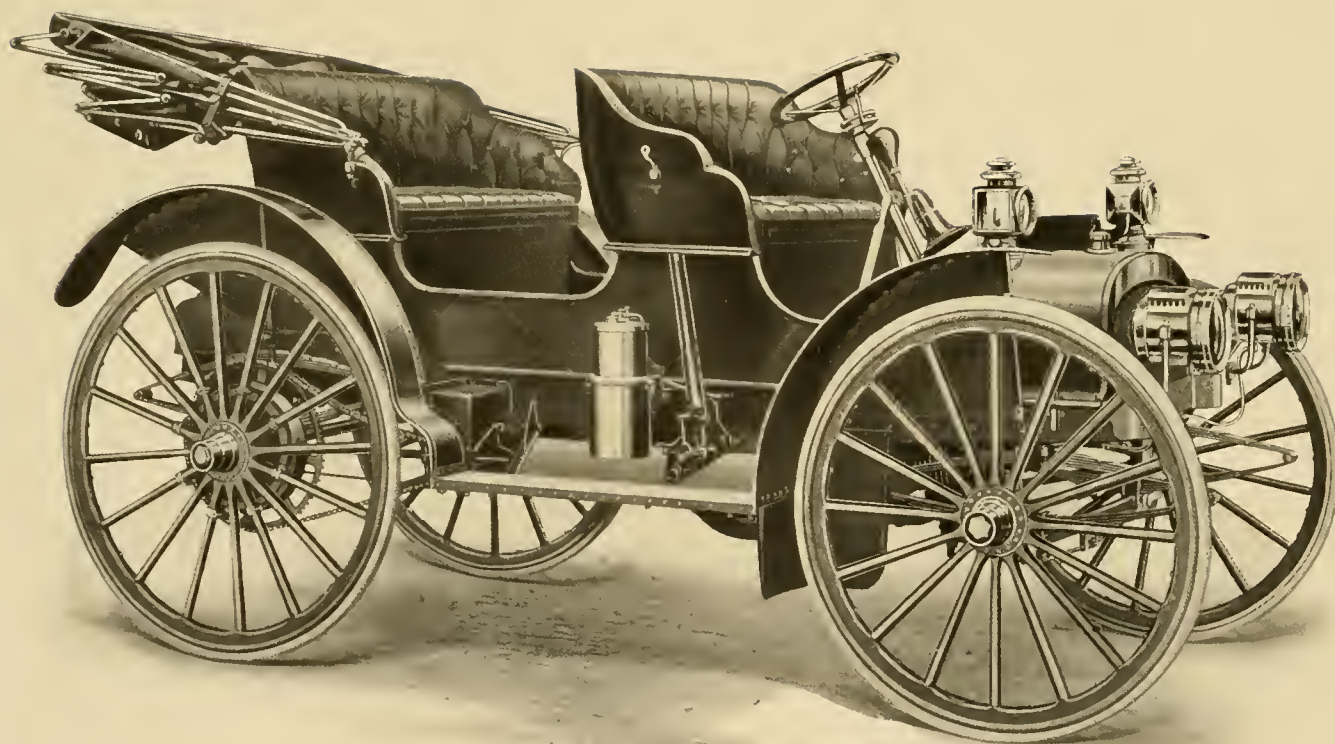
HE engine of the International auto buggy is of the opposed 2-cylinder, 4-cycle type. It is placed so that the weight is equally distributed on the four wheels. This is an important feature in a car designed to travel country roads, because if the weight were placed entirely on the front wheels they would have a tendency to sink more in soft and muddy roads than the rear wheels. This would make traction very difficult. The great advantage of having two cylinders opposed is that it makes an exceedingly simple engine in construction, doing away with extra valves, springs, spark plugs, and wiring, all of which materially add to the complication of an engine. The two cylinders being opposed, one offsets the vibration of the other so that the engine runs smoothly. The cylinders have a 5-inch bore and 5-inch stroke, generating sufficient power to carry the car over bad roads and up steep hills. The engine is rated at 14 horse-power, brake test, which is equivalent to 18 to 20 different parts are sim-



Note the solidity and simplicity of the engine

adjusting that may be horse-power in automobile rating. The ply made and all ordinary work and necessary can be done by the driver without the assistance of an expert mechanic.

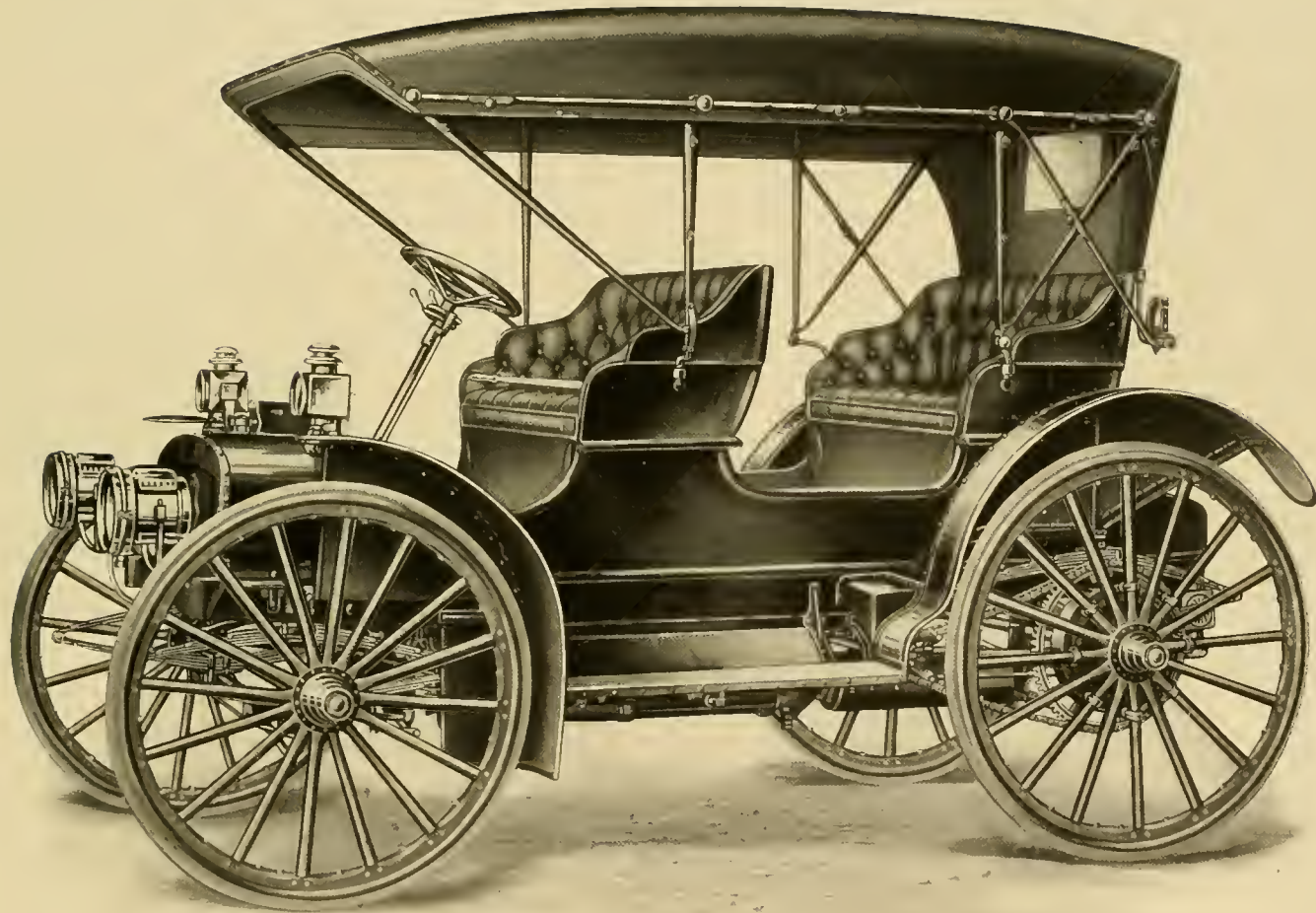
The valves are in the end of the cylinder and can be taken out without removing the cylinder head.



International Auto Buggy with top down







International Auto Buggy with top up



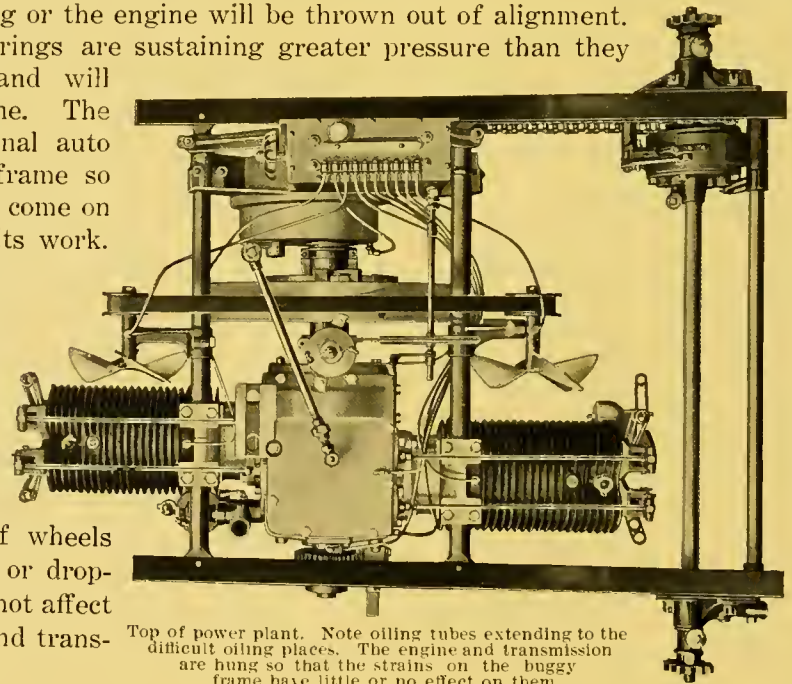


## Suspension of Engine and Transmission



It is of great importance that the engine of any automobile be placed in such position that the strains which come on the vehicle have the least possible effect on it. The car that is built to travel country roads is always subjected to strains that will soon tell on the engine unless it is relieved of them. If the engine is not properly hung, one of two things will always happen; the strain will break something or the engine will be thrown out of alignment. This means that the bearings are sustaining greater pressure than they are designed to stand, and will wear out in a short time. The engine on the International auto buggy is placed on the frame so that any strain which may come on the frame will not affect its work.

The engine is fastened to the cross sills over the cylinder at four points. The transmission is fastened to the cross sill at two points only. Consequently any strain which is liable to be transmitted to the body on account of wheels passing over obstructions or dropping into depressions will not affect the alignment of engine and transmission.



Top of power plant. Note oiling tubes extending to the difficult oiling places. The engine and transmission are hung so that the strains on the buggy frame have little or no effect on them





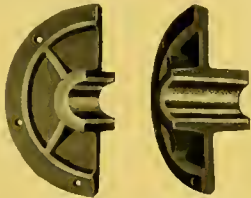
## Differential



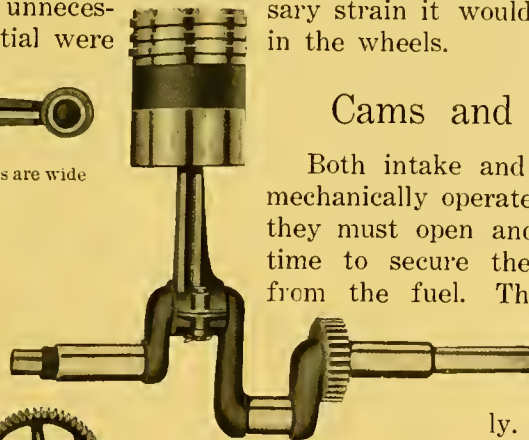
HE differential is placed on the right side of the countershaft. It is well protected from dust and mud, and is convenient to reach in the event it should need attention. Placing the differential in this position protects it from jars and unnecessary strain it would have to withstand in the wheels.



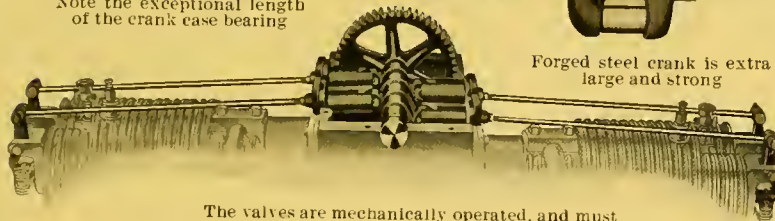
Connecting rod is long and bearings are wide



Note the exceptional length of the crank case bearing



Forged steel crank is extra large and strong



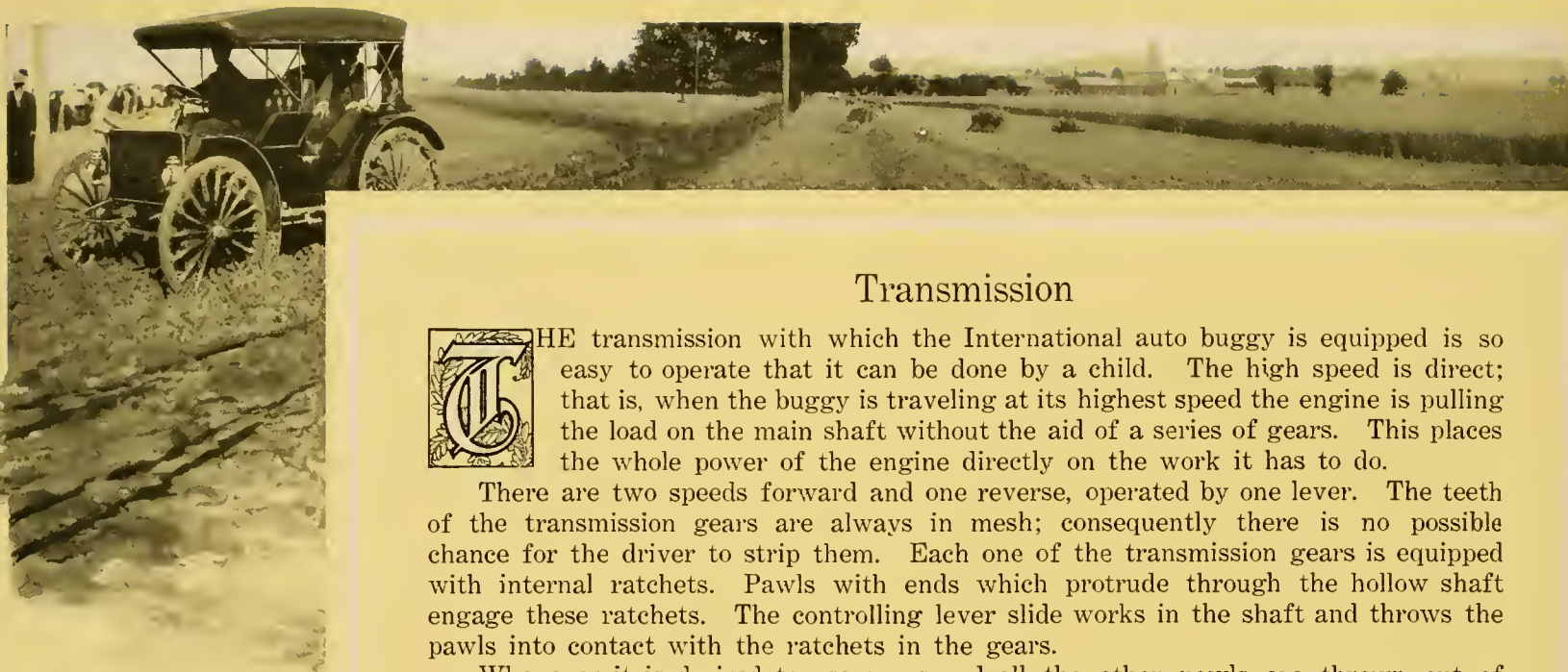
The valves are mechanically operated, and must open and close at the proper time

## Cams and Cam Shaft

Both intake and exhaust valves are mechanically operated. This means that they must open and close at the right time to secure the greatest efficiency from the fuel. There cannot be any variation; consequently the engine runs smoothly.

The cams are carefully machined to insure positive exactness, and are so shaped that the cams and cam shafts are noiseless. They are hardened to make them durable. The cams and

cam gear are enclosed in the crank case, and are oiled by the splash system which oils the crank. This method keeps them lubricated so that they always run quietly and easily.



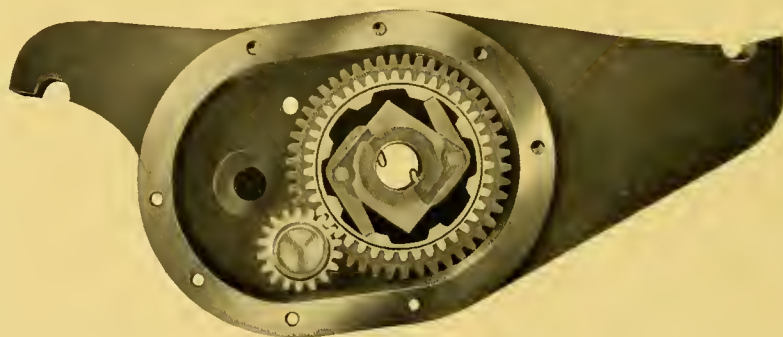
## Transmission



THE transmission with which the International auto buggy is equipped is so easy to operate that it can be done by a child. The high speed is direct; that is, when the buggy is traveling at its highest speed the engine is pulling the load on the main shaft without the aid of a series of gears. This places the whole power of the engine directly on the work it has to do.

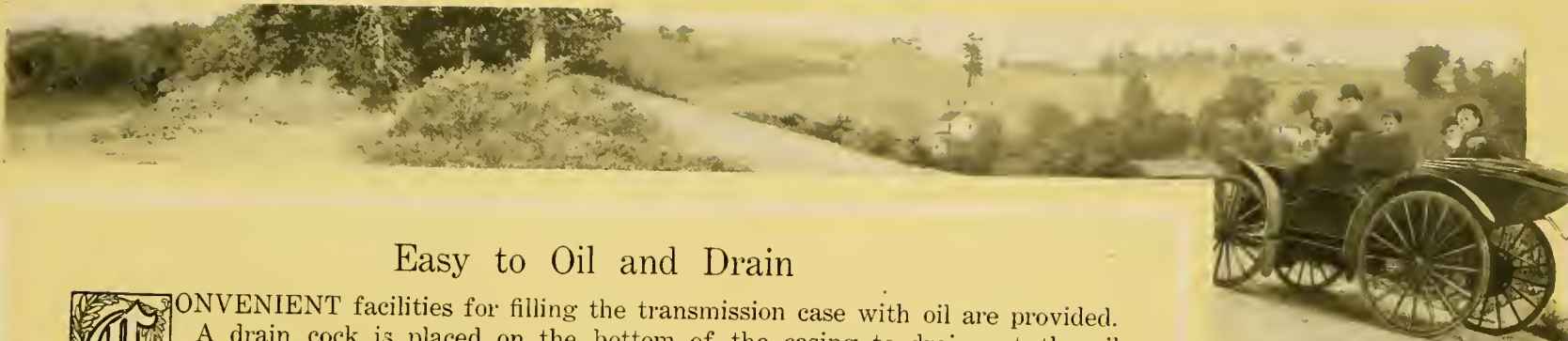
There are two speeds forward and one reverse, operated by one lever. The teeth of the transmission gears are always in mesh; consequently there is no possible chance for the driver to strip them. Each one of the transmission gears is equipped with internal ratchets. Pawls with ends which protrude through the hollow shaft engage these ratchets. The controlling lever slide works in the shaft and throws the pawls into contact with the ratchets in the gears.

Whenever it is desired to use one speed all the other pawls are thrown out of contact, and those which control the speed desired are thrown into contact. This method prevents breakage due to lack of experience and knowledge in operating the car. It is absolutely impossible to make a mistake in throwing in one set of gears and releasing another, because the release is automatic. The transmission gears are enclosed in a heavy oil-tight casing and run in an oil bath. This transmission is used exclusively on International cars.



Sectional view of transmission, showing the hollow shaft and pawls





## Easy to Oil and Drain

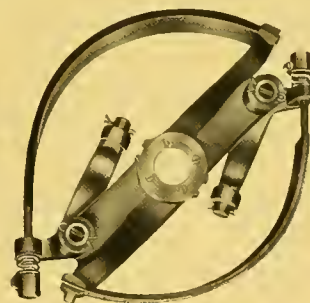
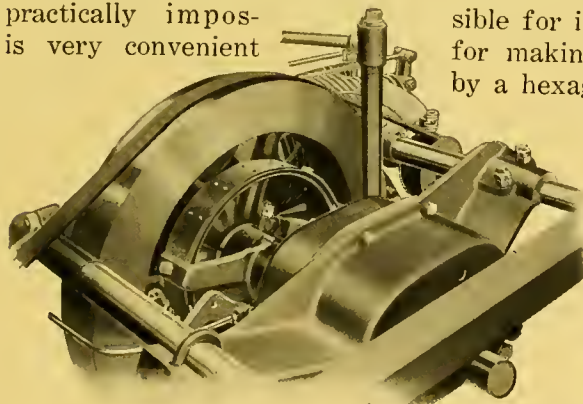
**C**ONVENIENT facilities for filling the transmission case with oil are provided. A drain cock is placed on the bottom of the casing to drain out the oil should it be desired. The transmission when running is noiseless.

The gears are bronze and steel, accurately machined and finished. They are made with a wide face, insuring large wearing surfaces. The transmission shaft bearings are extra long and made of manganese bronze. The pawls are made of a special quality of steel and heat treated. This transmission seldom needs attention other than oiling. It has no sliding gears—no clutch band to adjust.

## Clutch

The clutch is operated by two cams which engage two rollers on the end of the clutch levers. These draw the clutch bands around the wheel so tightly that it is practically impossible for it to slip. This clutch is placed so that it is very convenient for making adjustments. Each band is adjusted by a hexagon nut which can be turned and locked

without any inconvenience whatever. The clutch is fitted with a special lining which can be replaced when worn.



Note the convenience of reaching the clutch for making adjustments

Each half of the clutch is adjusted by a nut on the end of the clutch band



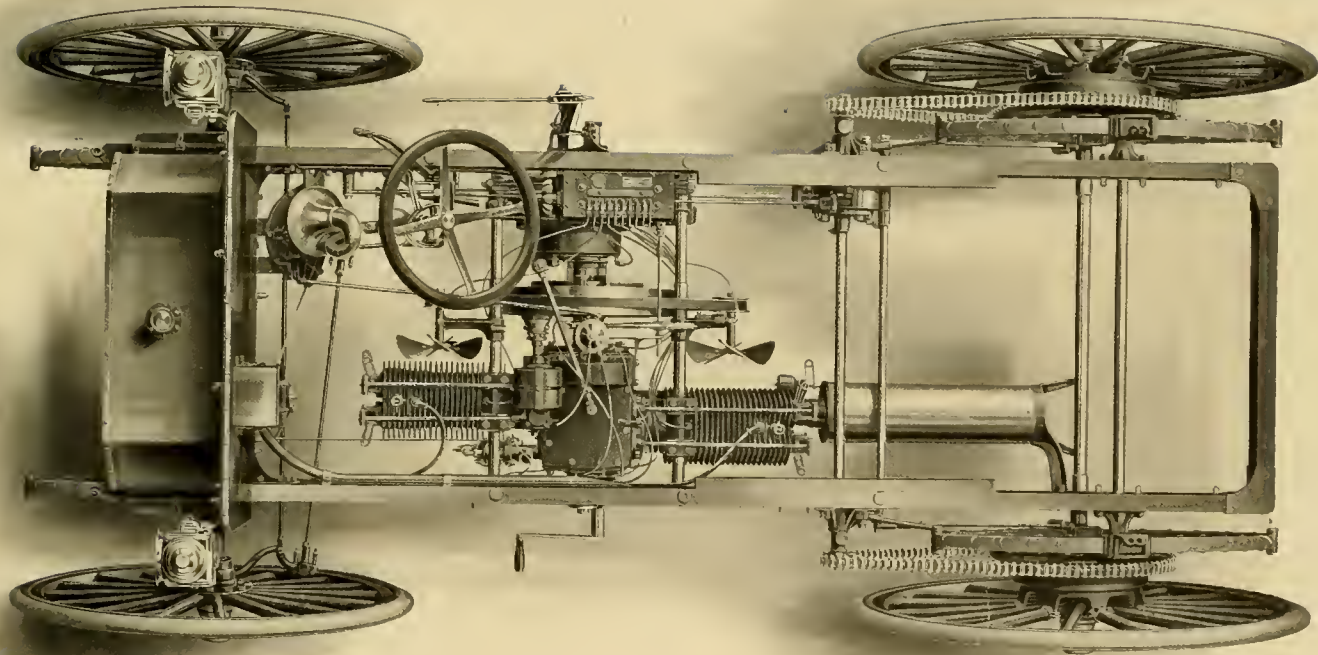
International Auto Buggy. Front view. Top down.  
Note the heavy tires with a flat surface



International Auto Buggy. Rear view. Top up

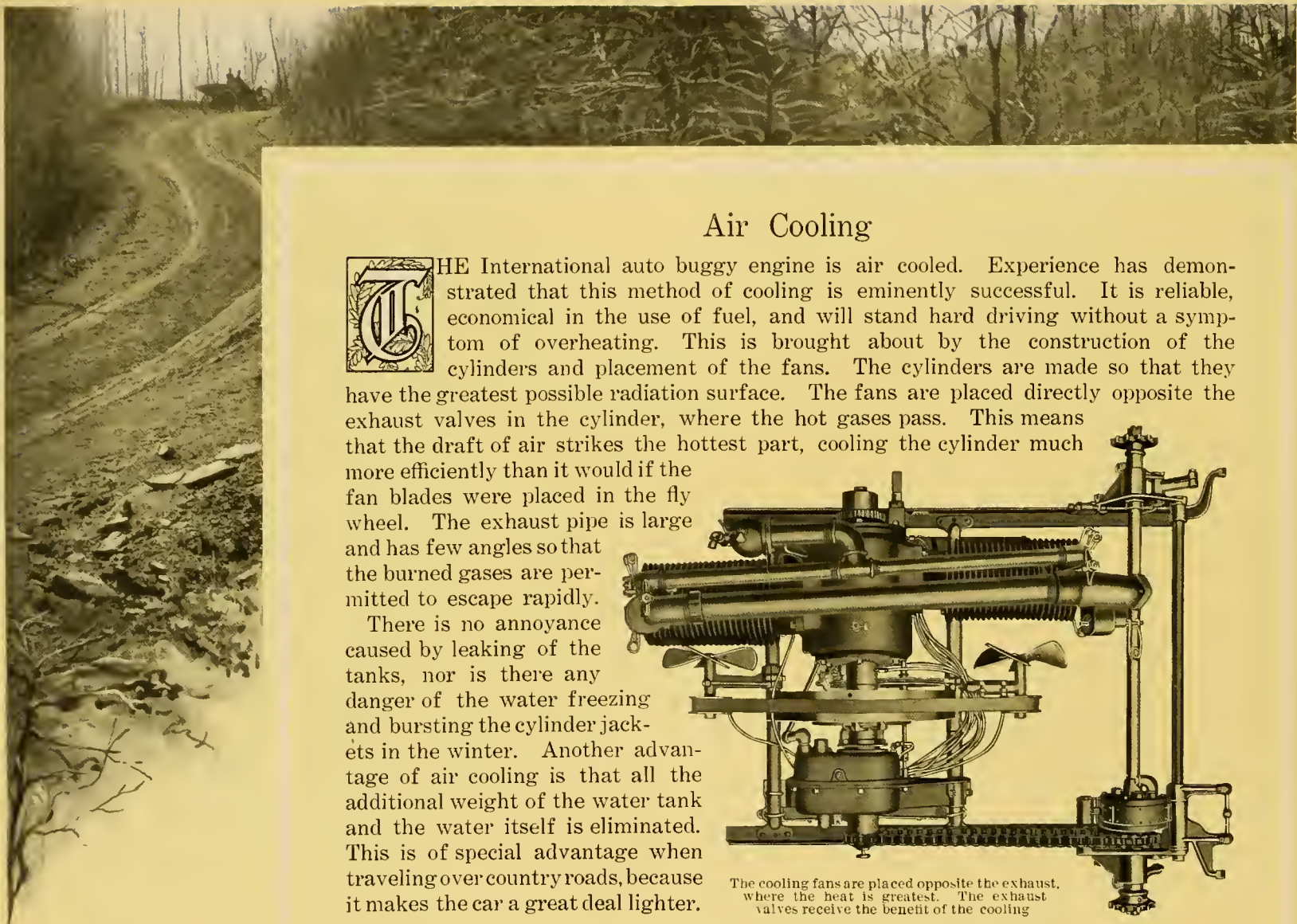






International Auto Wagon Chassis. Auto Buggy Chassis is the same except that the hood is rounding

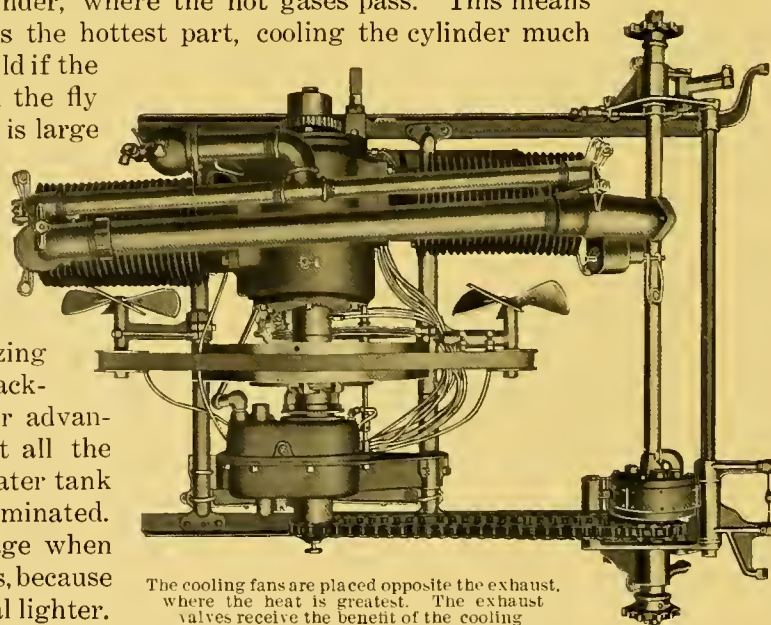




## Air Cooling

**T**HE International auto buggy engine is air cooled. Experience has demonstrated that this method of cooling is eminently successful. It is reliable, economical in the use of fuel, and will stand hard driving without a symptom of overheating. This is brought about by the construction of the cylinders and placement of the fans. The cylinders are made so that they have the greatest possible radiation surface. The fans are placed directly opposite the exhaust valves in the cylinder, where the hot gases pass. This means that the draft of air strikes the hottest part, cooling the cylinder much more efficiently than it would if the fan blades were placed in the fly wheel. The exhaust pipe is large and has few angles so that the burned gases are permitted to escape rapidly.

There is no annoyance caused by leaking of the tanks, nor is there any danger of the water freezing and bursting the cylinder jackets in the winter. Another advantage of air cooling is that all the additional weight of the water tank and the water itself is eliminated. This is of special advantage when traveling over country roads, because it makes the car a great deal lighter.



The cooling fans are placed opposite the exhaust, where the heat is greatest. The exhaust valves receive the benefit of the cooling

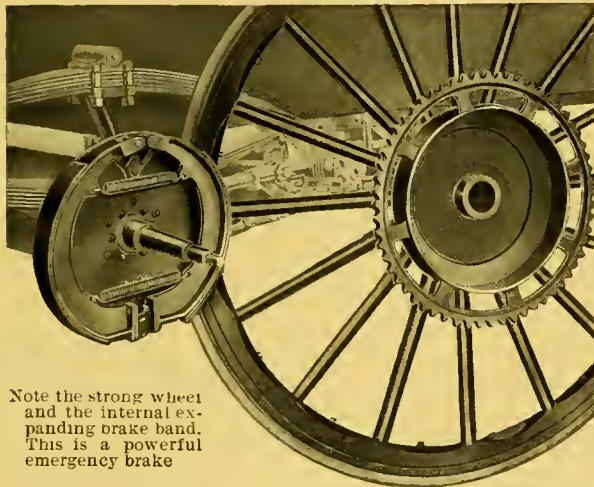




## Brakes

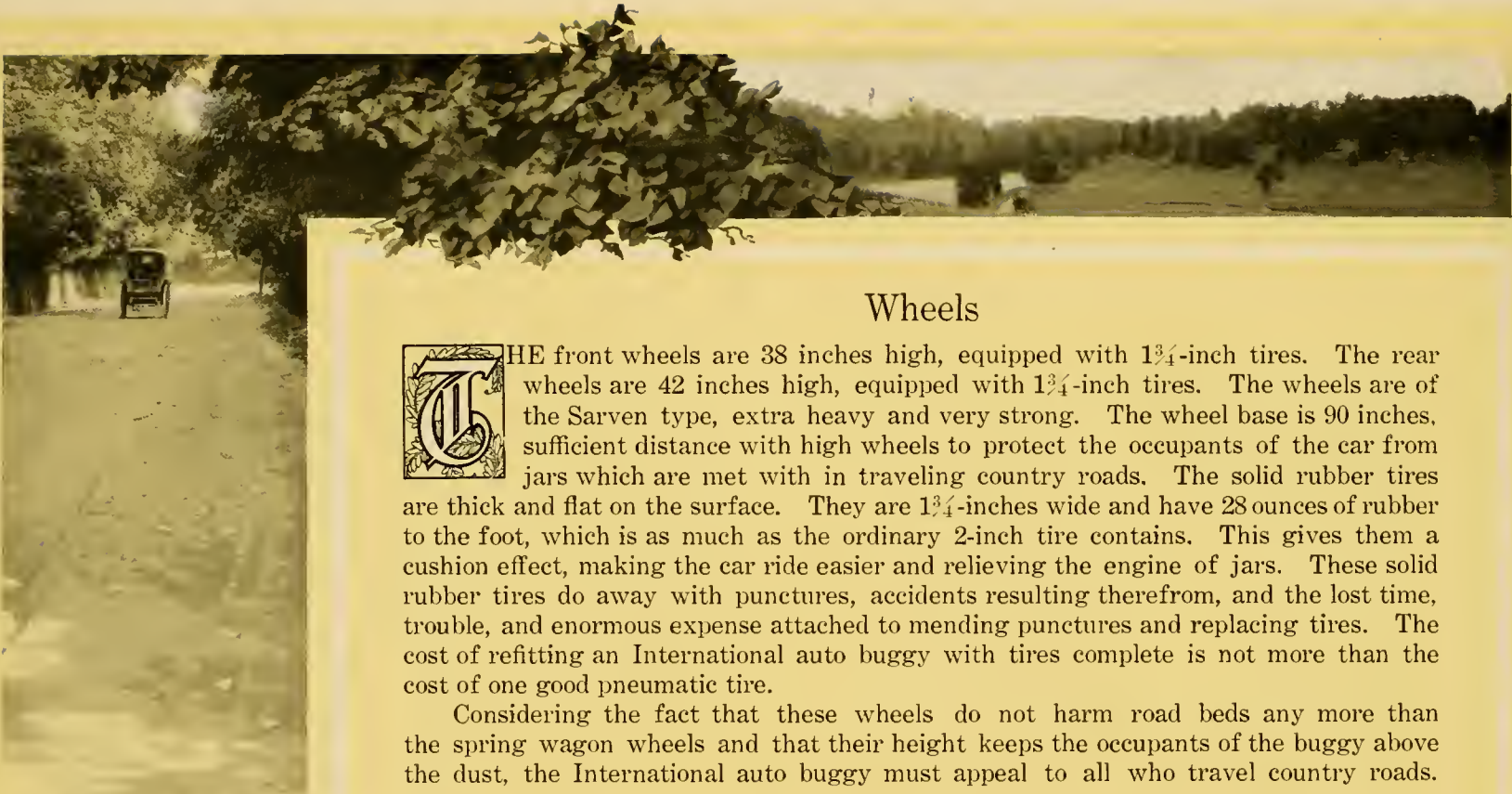
**T**HE International auto buggy is equipped with two brakes—an external band brake on the differential and an internal expansion in both rear wheels. These brakes are very powerful and instantaneous in their action. They give the operator absolute control of his car at all times. The internal brake in the rear wheels is placed in the brake drum of each rear wheel. It is operated by a shoe cam which imparts instantaneous and powerful pressure on the brake. This brake is operated by a foot lever and the leverage is so great that a slight pressure of the foot brings the car to a very quick stop.

Dust does not interfere with the work of this brake, because it is encased so high from the ground that there is not the least possible chance for dirt working into it. The brake rod is equipped with an adjustment which enables the driver to keep the brake adjusted so it will not slip or be too tight. The brake on the differential is operated by a hand lever convenient to the right-hand side of the driver. This brake can be locked. Both brakes are thoroughly dependable. They would be strong enough for a great deal heavier machine operated with a more powerful engine. These brakes are thoroughly dependable, a feature which will appeal to those who desire a reliable car.



Note the strong wheel and the internal expanding brake band. This is a powerful emergency brake





## Wheels



HE front wheels are 38 inches high, equipped with  $1\frac{3}{4}$ -inch tires. The rear wheels are 42 inches high, equipped with  $1\frac{3}{4}$ -inch tires. The wheels are of the Sarven type, extra heavy and very strong. The wheel base is 90 inches, sufficient distance with high wheels to protect the occupants of the car from jars which are met with in traveling country roads. The solid rubber tires are thick and flat on the surface. They are  $1\frac{3}{4}$ -inches wide and have 28 ounces of rubber to the foot, which is as much as the ordinary 2-inch tire contains. This gives them a cushion effect, making the car ride easier and relieving the engine of jars. These solid rubber tires do away with punctures, accidents resulting therefrom, and the lost time, trouble, and enormous expense attached to mending punctures and replacing tires. The cost of refitting an International auto buggy with tires complete is not more than the cost of one good pneumatic tire.

Considering the fact that these wheels do not harm road beds any more than the spring wagon wheels and that their height keeps the occupants of the buggy above the dust, the International auto buggy must appeal to all who travel country roads.

## Axles

The axles, both front and rear, are extra large and forged from steel. The steering knuckles are steel forged and very strong. Roller bearings are used on front and rear wheels.



Axle and axle spindles are exceptionally large and strong





## Lubrication



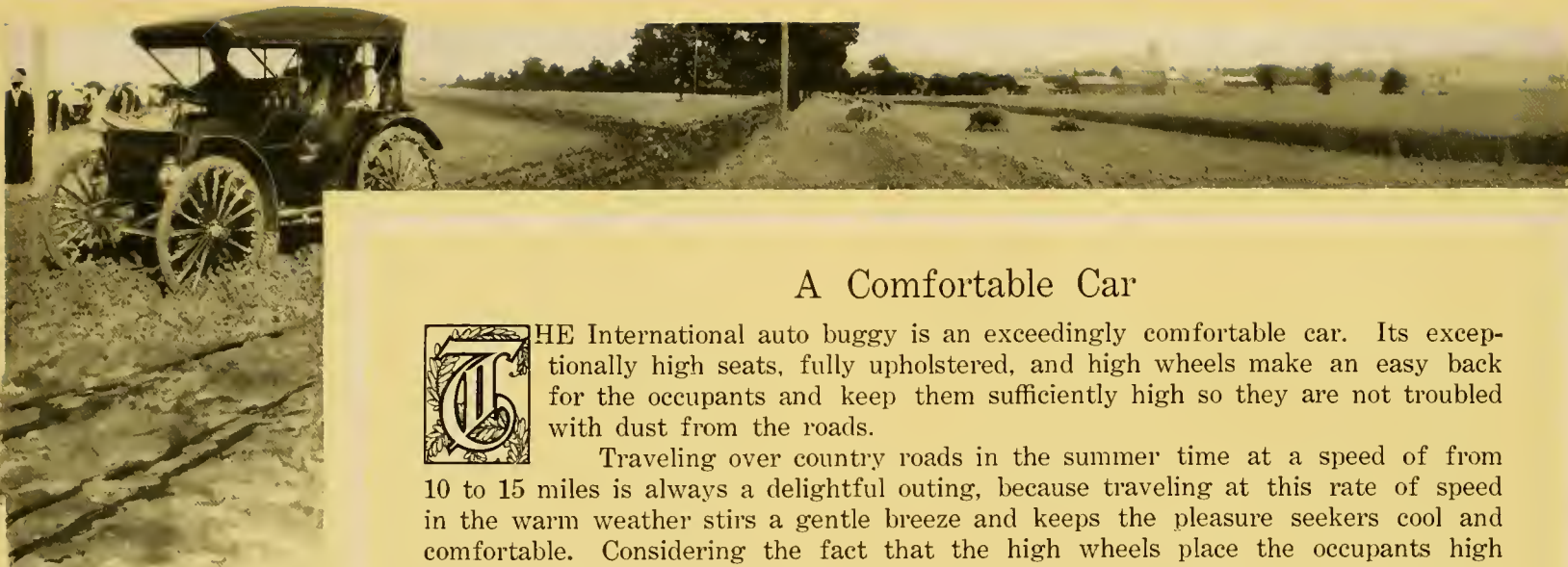
TEN-FEED mechanical oiler is used to lubricate the International auto buggy. Each one of these feeds is controlled by a separate valve which can be adjusted to pump a requisite amount of oil to the bearing which it lubricates. These valves are adjusted for the proper amount of oil to reach the bearing. This oiler is placed on the right-hand side of the engine where it is convenient to fill. The pump is operated by pulleys and spring belt from the mainshaft.

## A Noiseless Car

The International auto buggy does not make any more noise than the average automobile. The criticism that has often been raised against the high-wheel car being noisy is not true of the International auto buggy. A gentle whir of the motor and slight sound of the chain drive is about all the noise that can be heard, and this is not noticeable enough to be annoying to the occupants of the car. The fenders do not rattle and are placed so that they deaden the sound of the mechanism. The drive chain is equipped with roller links which do away with the rattle common to the ordinary chain. Cam shaft, cam roller guides, valve rods, wheel sprockets, countershaft, differential, and clutch are made in such a manner that they are practically noiseless. So quietly does the International auto buggy run that this feature has been commented upon as one of the strong points in favor of this car.

The muffler is placed back of the engine and the exhaust pipe leading to it from the cylinders is extra large. The valve openings are large. The muffler is sufficient in silencing the exhaust, making the engine practically noiseless. It removes all back pressure, thereby preventing any decrease in the power of the engine.





## A Comfortable Car



THE International auto buggy is an exceedingly comfortable car. Its exceptionally high seats, fully upholstered, and high wheels make an easy back for the occupants and keep them sufficiently high so they are not troubled with dust from the roads.

Traveling over country roads in the summer time at a speed of from 10 to 15 miles is always a delightful outing, because traveling at this rate of speed in the warm weather stirs a gentle breeze and keeps the pleasure seekers cool and comfortable. Considering the fact that the high wheels place the occupants high above the dust and that these wheels do not raise an unnecessary amount of dust, it would be hard to imagine a more comfortable vehicle for pleasure riding in the summer. The rate of speed at which this car may be run is from 2 miles per hour on low speed to 20 miles per hour on high speed. The full elliptic springs and 90 inch wheel base insure the utmost possible comfort when travelling over uneven roads. Such features as these are making the International auto buggy the most popular car for country road travel.

When riding in stormy weather, the storm curtains keep the occupants dry; they form a complete protection against mud and water being thrown into the buggy box.

## Control

The steering is done by means of a wheel which relieves the driver of all the strain common to the lever type of steering gear. Both the throttle and spark control are placed on the steering column; the lever for the clutch and speed changes is on the right side of the seat where it is convenient to the driver. The brake foot lever is close to the foot of the driver and the emergency brake lever is within convenient reach of the driver's right hand.



## Accessibility

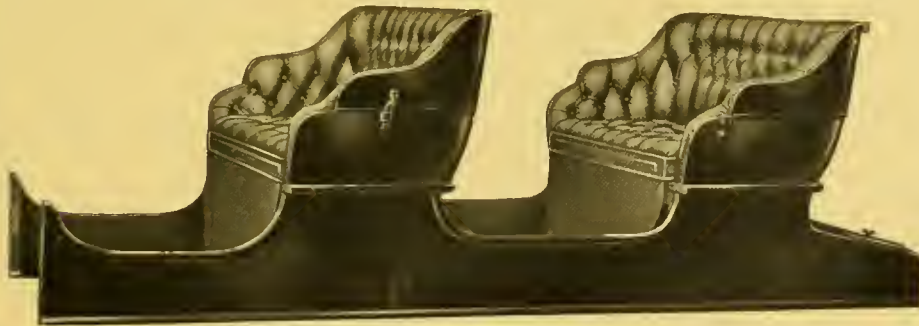


N automobile, like other machines, requires attention. Adjustments must be made, nuts have to be tightened and bearings that are not reached by the mechanical oiler have to be oiled by hand. Unless the complete power plant can be readily reached, the operator will experience difficulty in properly caring for his machine.

The International auto buggy is so made that all parts of the engine are accessible from the top. It is never necessary to crawl under the buggy to make adjustments. As a matter of fact, there is no part which cannot be reached with ease. The floor of the buggy box can be removed so that the complete power plant is immediately exposed for inspection. The gasoline tank and battery boxes are placed in a hood in front of the dash-board, where it is an easy matter to reach them.

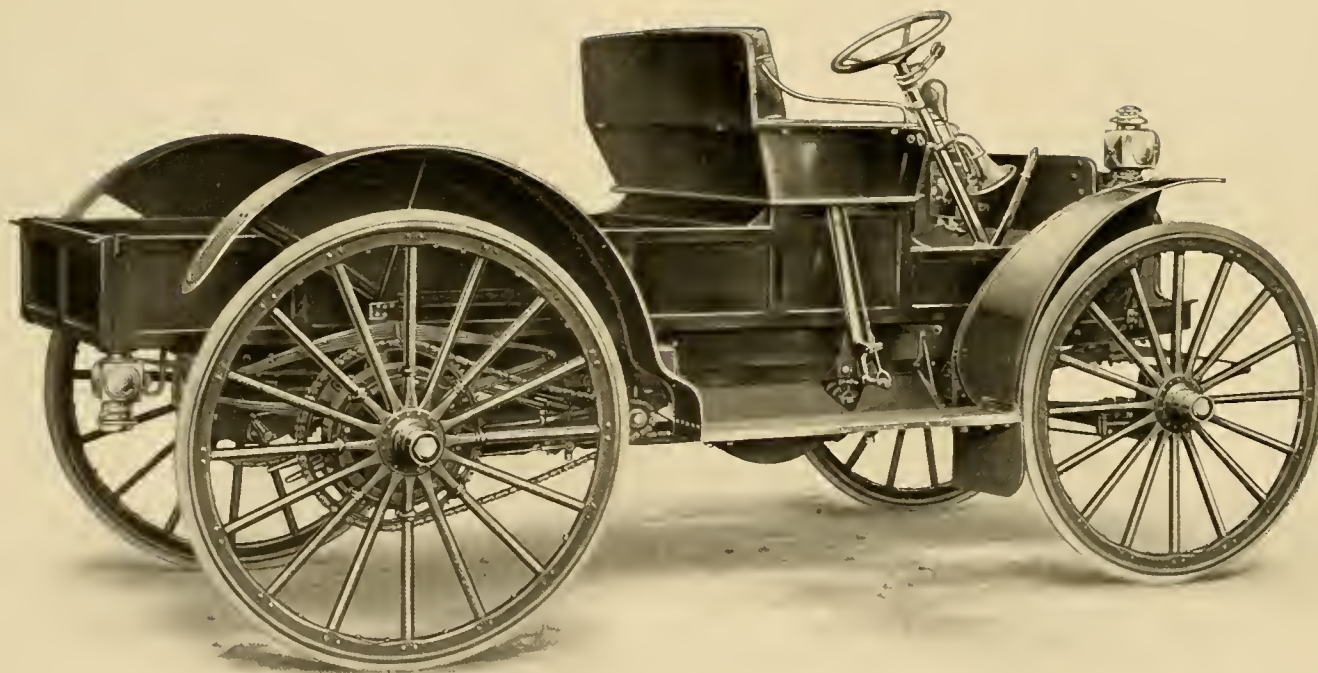
## Chassis

The body of either the International auto buggy or auto wagon can be placed upon the same chassis. The man who wants two cars in one can, by purchasing either the auto wagon or the auto buggy, equip himself with the extra body and have in reality two cars in one.



This surrey body can be put upon the auto wagon chassis, making a fine pleasure vehicle out of the auto wagon

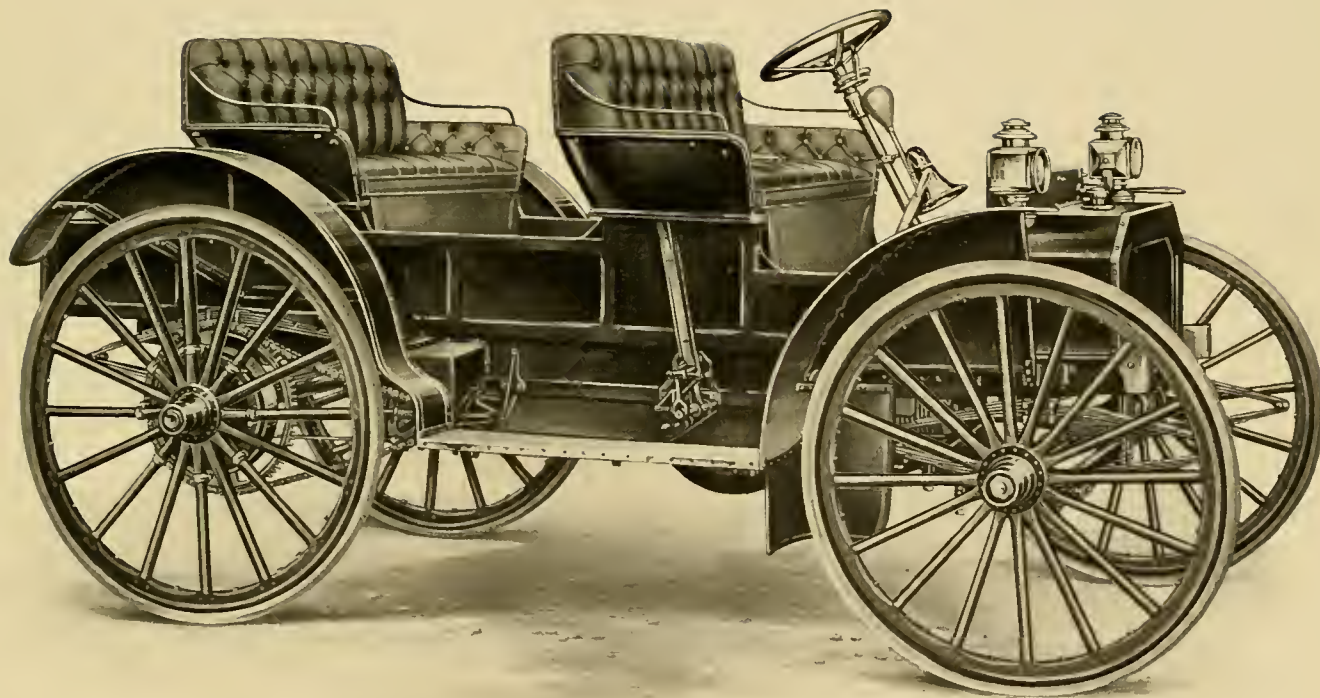




International Auto Wagon with one seat

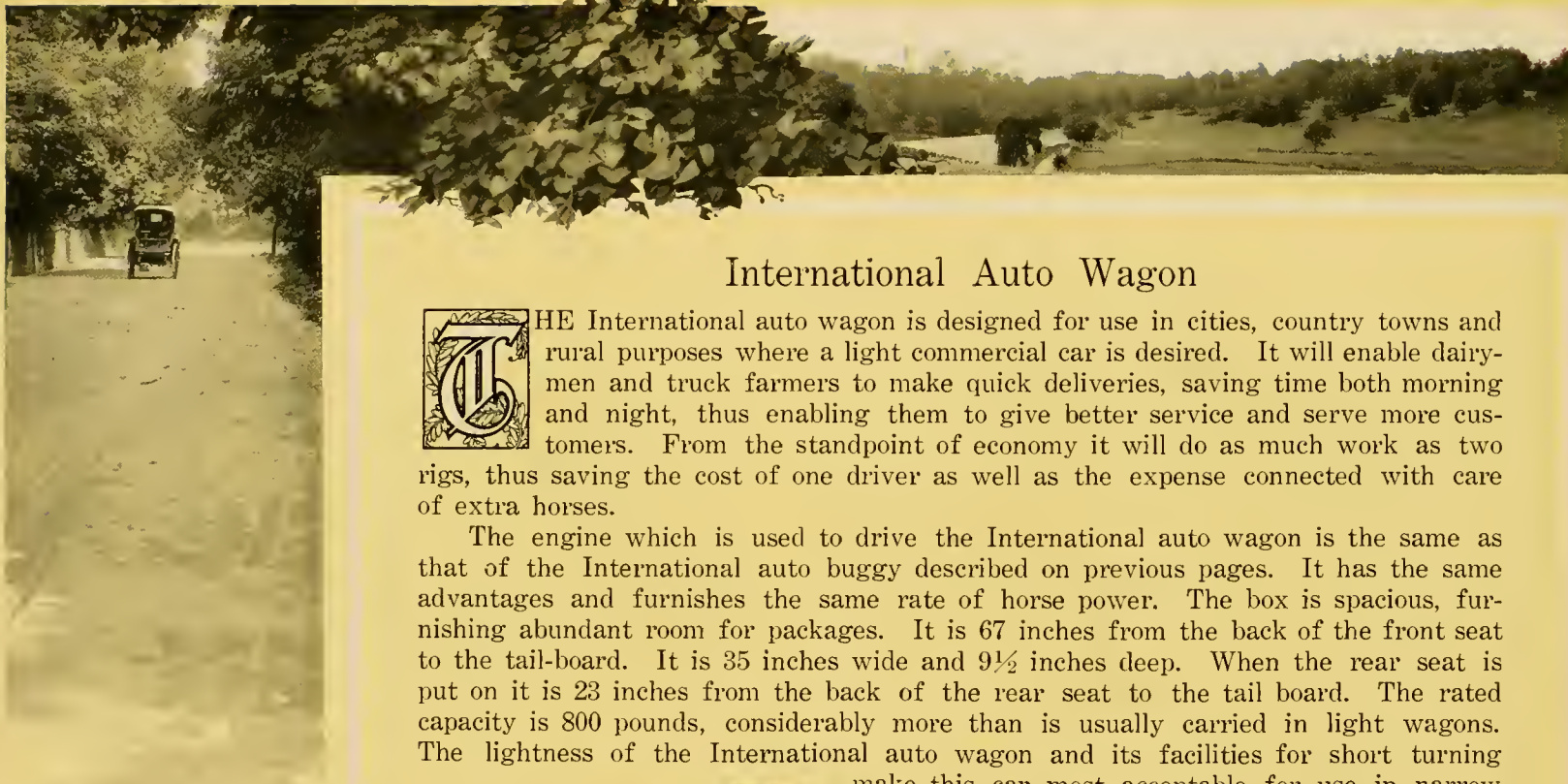






International Auto Wagon with two seats





## International Auto Wagon

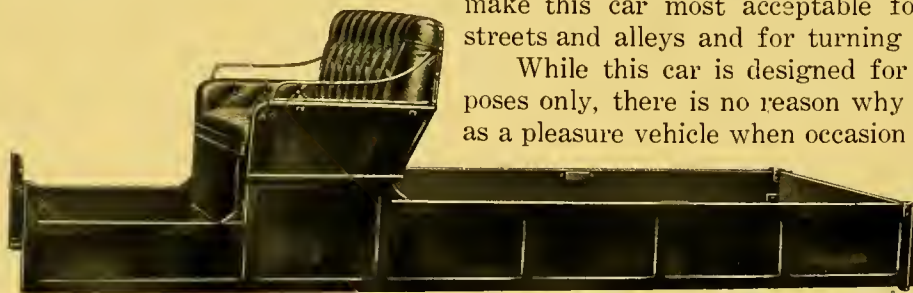


HE International auto wagon is designed for use in cities, country towns and rural purposes where a light commercial car is desired. It will enable dairy-men and truck farmers to make quick deliveries, saving time both morning and night, thus enabling them to give better service and serve more customers. From the standpoint of economy it will do as much work as two rigs, thus saving the cost of one driver as well as the expense connected with care of extra horses.

The engine which is used to drive the International auto wagon is the same as that of the International auto buggy described on previous pages. It has the same advantages and furnishes the same rate of horse power. The box is spacious, furnishing abundant room for packages. It is 67 inches from the back of the front seat to the tail-board. It is 35 inches wide and 9½ inches deep. When the rear seat is put on it is 23 inches from the back of the rear seat to the tail board. The rated capacity is 800 pounds, considerably more than is usually carried in light wagons. The lightness of the International auto wagon and its facilities for short turning make this car most acceptable for use in narrow streets and alleys and for turning in close quarters.

While this car is designed for commercial purposes only, there is no reason why it cannot be used as a pleasure vehicle when occasion demands. It has

the same easy riding quality as the auto buggy.



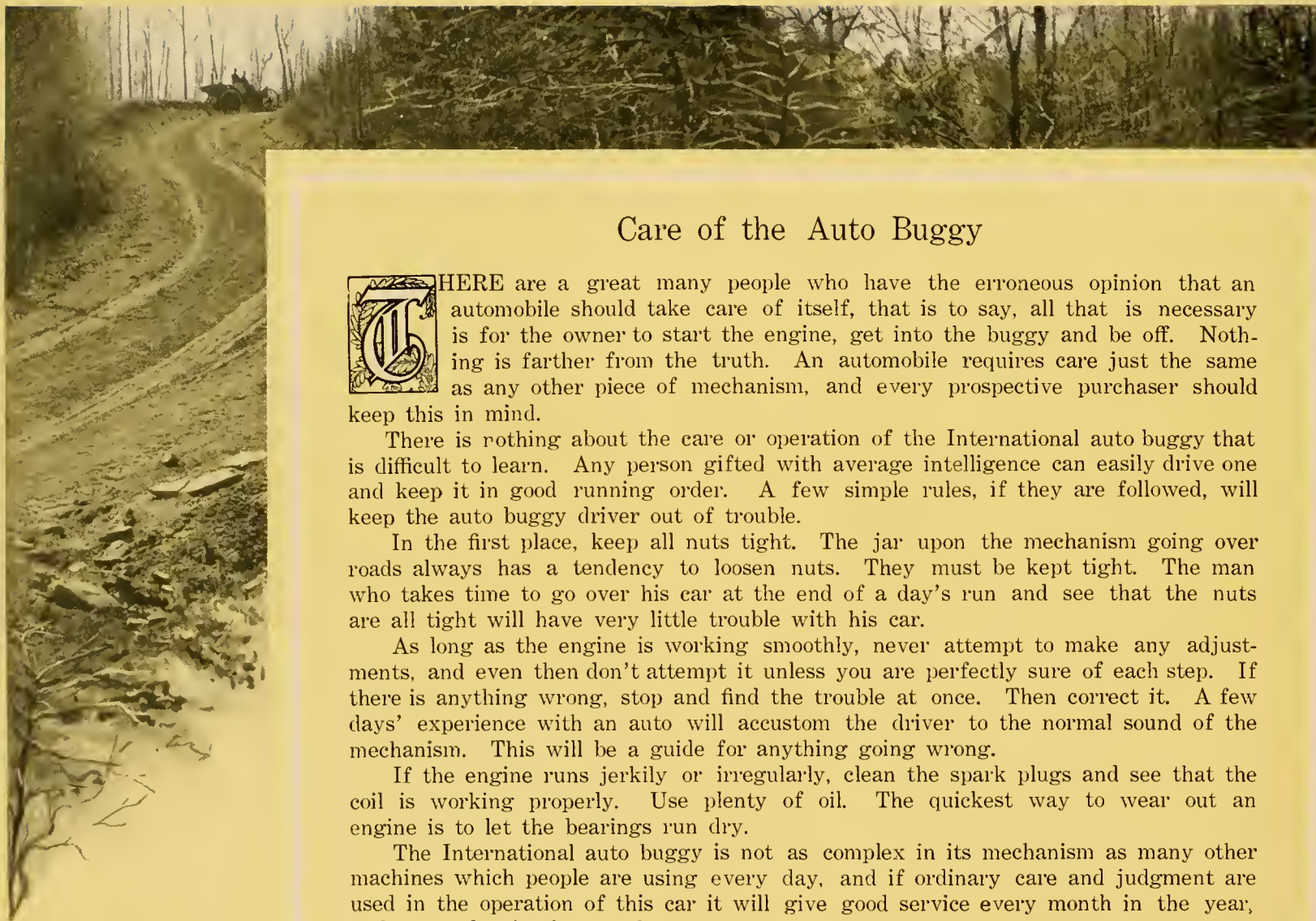
This box can be placed upon the chassis of the auto buggy, making a business vehicle





International Auto Wagon. Two seats with top up





## Care of the Auto Buggy



HERE are a great many people who have the erroneous opinion that an automobile should take care of itself, that is to say, all that is necessary is for the owner to start the engine, get into the buggy and be off. Nothing is farther from the truth. An automobile requires care just the same as any other piece of mechanism, and every prospective purchaser should keep this in mind.

There is nothing about the care or operation of the International auto buggy that is difficult to learn. Any person gifted with average intelligence can easily drive one and keep it in good running order. A few simple rules, if they are followed, will keep the auto buggy driver out of trouble.

In the first place, keep all nuts tight. The jar upon the mechanism going over roads always has a tendency to loosen nuts. They must be kept tight. The man who takes time to go over his car at the end of a day's run and see that the nuts are all tight will have very little trouble with his car.

As long as the engine is working smoothly, never attempt to make any adjustments, and even then don't attempt it unless you are perfectly sure of each step. If there is anything wrong, stop and find the trouble at once. Then correct it. A few days' experience with an auto will accustom the driver to the normal sound of the mechanism. This will be a guide for anything going wrong.

If the engine runs jerkily or irregularly, clean the spark plugs and see that the coil is working properly. Use plenty of oil. The quickest way to wear out an engine is to let the bearings run dry.

The International auto buggy is not as complex in its mechanism as many other machines which people are using every day, and if ordinary care and judgment are used in the operation of this car it will give good service every month in the year, and every day in the month.



















